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"Field Intensity Recordings in the Centimeter Wave Range"

To determine to what extent scattering processes or partial reflections, which are dependent on the weather, contribute to wave propagation over wider ranges is difficult, and as yet efforts to determine this have been unsuccessful. One possibility of determining these facts is the investigation of wave propagation over various paths from the transmitter to the receiver. For this purpose, great directivity (scharfe Buendelung) operating in the centimeter range is required. A measuring line with a wave length of 10.5 centimeters and with four parabolic dishes as antennas was erected over the 76 kilometer stretch between Adlershof and Fuenfeichen with the Radiosonde Station Lindenberg at the center (the same stretch used for measurements in the meter range). Since only one transmitter with an output of seven watts is available, the receiving apparatus must be especially sensitive. The lock-in procedure was chosen because it makes possible the measurement of the signal (Signalpegel) despite the noise of the receiving device. With such a procedure, sensitivity can be increased over normal receivers by a factor of 10^3. The first transmission experiments have been carried out with success, and it was shown that investigations of the magnitude of components in the receiving field intensity over various propagation lines can be carried out by tilting the parabolic antennas horizontally and vertically. The investigations per se are to be started in the near future.

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